INVENTOR(S): DAHL, CARLSON, LIU AND BOKHARI SHEET 1 of 13 ATTORNEY DOCKET No: 005950-845 I solate dia mondoids from petroleum feedstocks diamondoids (functionalized dia mondoid heterodiamondoid 103 104 functionalized heterodiamondoid poly merize 108 109 analyte labeled with heterodia mondoid probe Cause to Sluoresce and detect

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TITLE: LUMINESCENT HETERODIAMONDOIDS AS BIOLOGICAL

APPLN. FILING DATE: JANUARY 15, 2004 TITLE: LUMINESCENT HETERODIAMONDOIDS AS BIOLOGICAL **LABELS** INVENTOR(S): DAHL, CARLSON, LIU AND BOKHARI ATTORNEY DOCKET No: 005950-845 SHEET 2 of 13 FIG. 2 Step 1 Compare & Select Feedsmoks Step 2 Develop GC/MS Assay for Individual Higher Diamondoids Step 3 Distill Feedstock to

Concentrate Higher
Diamondoids in Atmospheric
Residuum

Fractionate Higher
Diamondoids by HighTemperature Vacuum
Distillation

Step 7

Isolate Higher Diamondoid by

Multi-Column HPLC

Step 4 (Optional)

Step 5 (Optional)
Fractions to Remove
Nondiamondoids Thereby
Concentrating Higher
Diamondoids

Step 6 (Optional)

Remove Aromatic and Polar

Compounds by Low-Pressure

Liquid Chromatography

Step 8 (Optional)
Further Purify HPLC Fractions
Using Preparative Gas
Chromatography and vice versa

Step 7

Isolate Higher Diamondoid by

Preparative Gas

Chromatography

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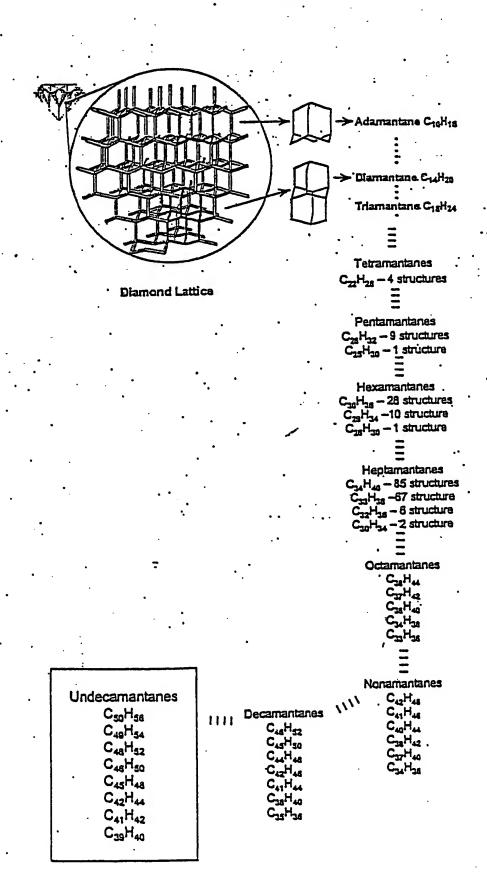
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LABELS

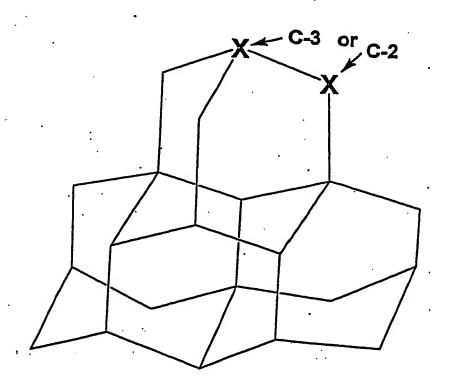
INVENTOR(S): DAHL, CARLSON, LIU AND BOKHARI

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FIG. 3



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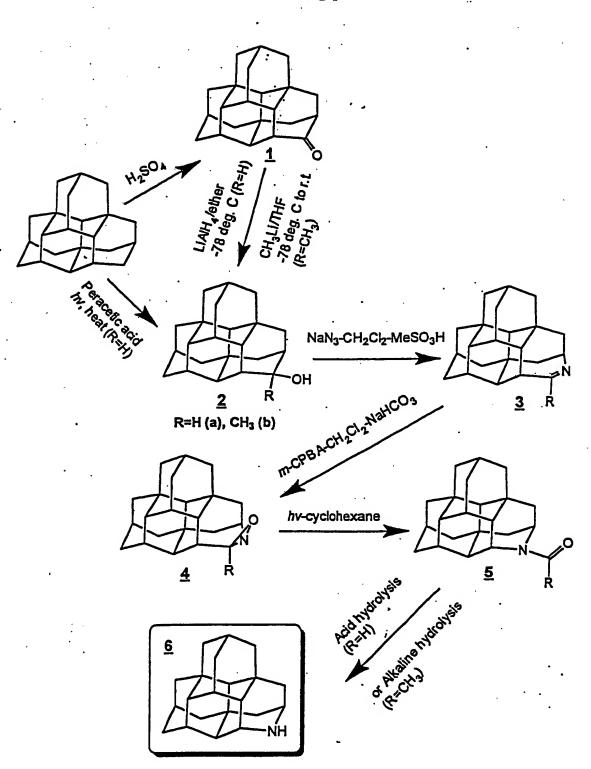


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INVENTOR(S): DAHL, CARLSON, LIU AND BOKHARI

ATTORNEY DOCKET No: 005950-845 **SHEET 5 of 13**

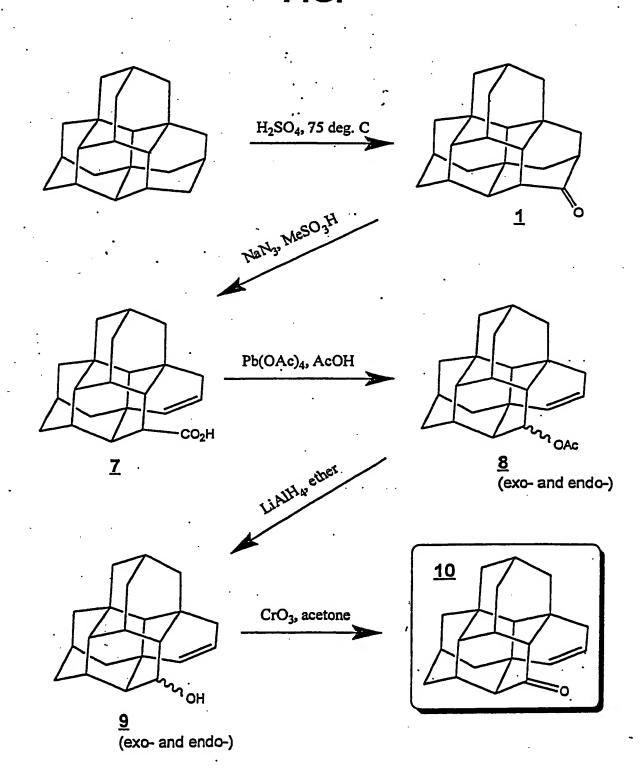
FIG. 5A



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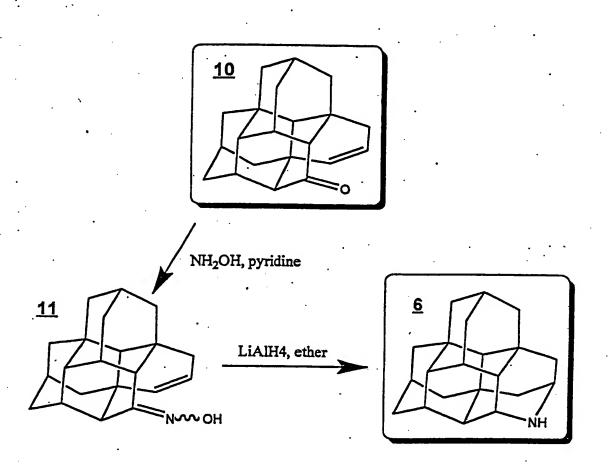
FIG. 5B



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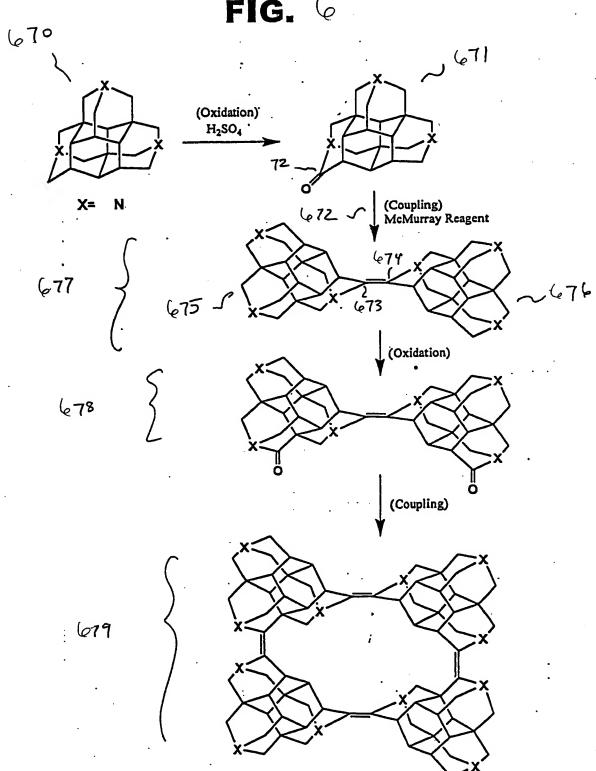
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> 5B (Cont.) FIG.

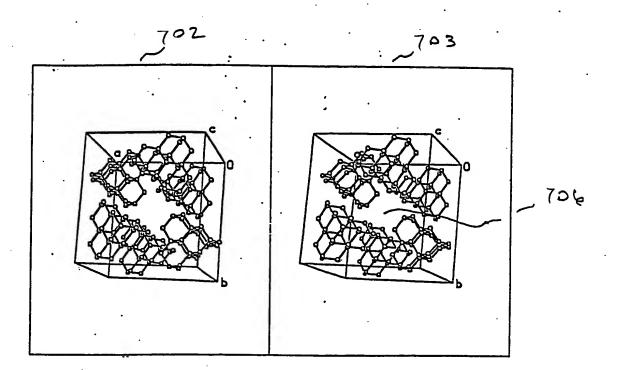


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FIG. 6



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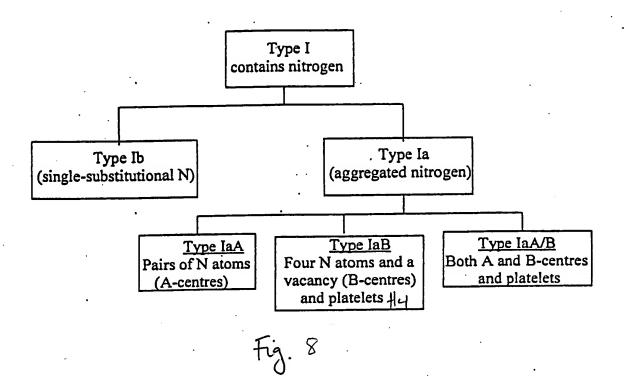
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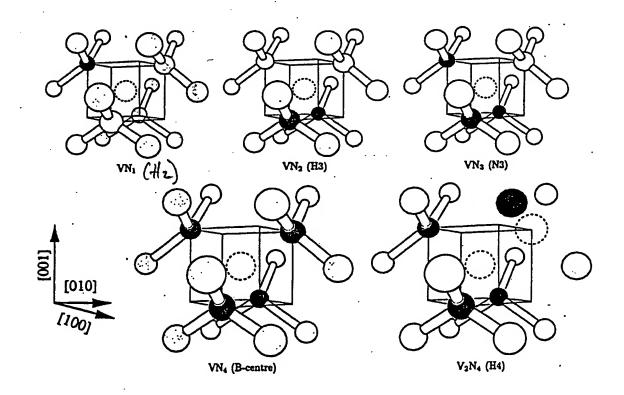
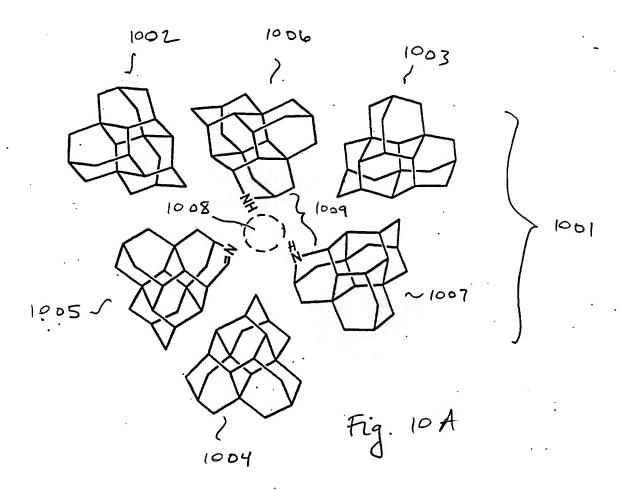
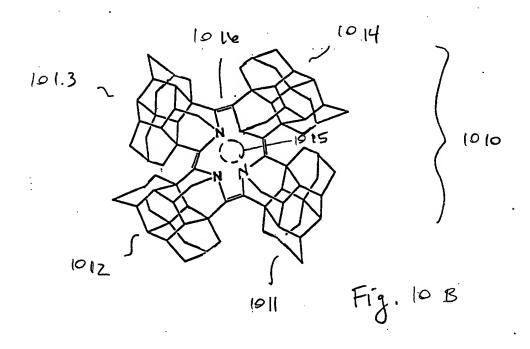


Fig. 9

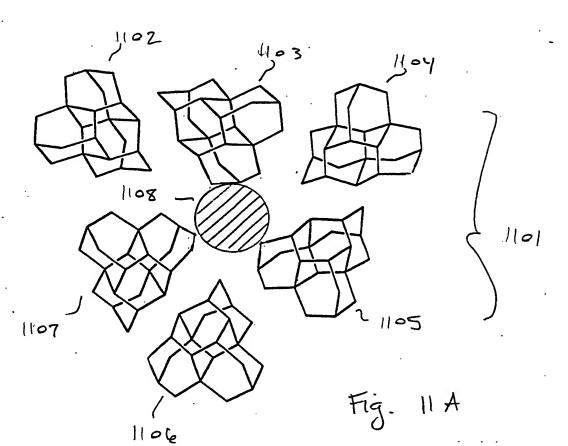
INVENTOR(S): DAHL, CARLSON, LIU AND BOKHARI

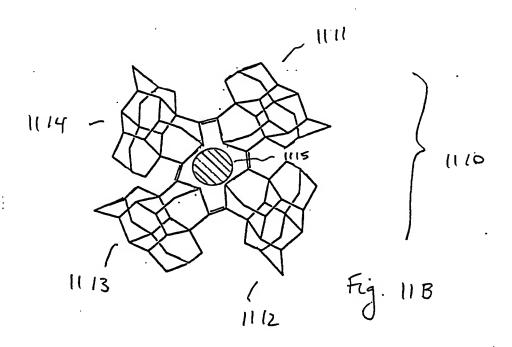
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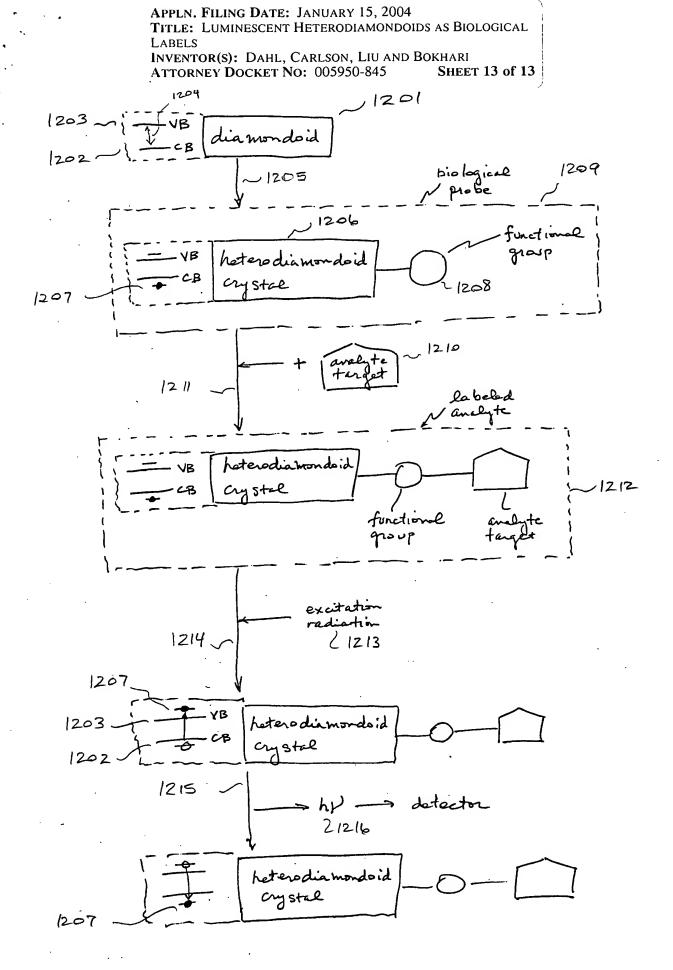


Fig. 12